

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

New Claims 22 to 32 are presently active in this case, original Claims 1-21 having been cancelled by the present amendment. New Claims 22-32 are supported by the specification and original claims. New Claims 22-32 add no new matter.

The outstanding Official Action rejected the title as not being descriptive enough. Claims 1-3, 6, 11-13, 16, and 21 were rejected under 35 USC §103(a) as being unpatentable over either Hays et al. (U.S. Patent No. 5,777,760) or Psaltis et al. (U.S. Patent No. 5,978,112) in view of Hori et al. ("Optical Pick-Up Head") or MacAnally et al. (U.S. Patent No. 4,752,922). Claims 4, 5, 14, and 15 were rejected under 35 USC §103(a) as being unpatentable over either Hays et al. or Psaltis et al. in view of Hori et al. or MacAnally et al. and further in view of the acknowledged prior art. Claims 8, 9, 18, and 19 were rejected under 35 USC §103(a) as being unpatentable over either Hays et al. or Psaltis et al. in view of Hori et al. or MacAnally et al. and further in view of Nakano (U.S. Patent No. 6,496,494). Claims 7 and 17 were rejected under 35 USC §103(a) as being unpatentable over either Hays et al. or Psaltis et al. in view of Hori et al. or MacAnally et al. and further in view of Official notice. Claims 10 and 20 were rejected under 35 USC §103(a) as being unpatentable over either Hays et al. or Psaltis et al. in view of Hori et al. or MacAnally et al. and further in view of Zhou et al. ("Implementation of Holographic Optical Disc").

In response to the objection to the title, the title has been amended to be more descriptive of the claimed invention. Accordingly, the objection to the title is believed to have been overcome.

Claims 1-21 have been cancelled, making the present rejections on the merits moot. To the extent that the present rejections apply to the new Claims 22-32, Applicant respectfully traverses the rejections.

✓ A problem solved by the present invention is that alignment marks recorded on holographic recording media cannot be accurately read on the peripheral portion of the recorded image. The inaccurate detection of the alignment marks prevents accurate control of the servo signal in the apparatus. Thus, as recited in Claims 22 and 27, the present invention includes "an alignment laser irradiating an alignment light beam perpendicularly onto the holographic recording medium, the alignment light beam being less absorbed than the recording light beam by the holographic recording medium, and being reflected by the holographic recording medium." None of the cited references suggest providing an alignment laser to irradiate an alignment light beam perpendicular to the recording medium, ✓ where the alignment light beam is less absorbed than the recording light beam, i.e., the wavelength of the alignment laser is different from the recording laser¹, as recited by Claims 22 and 27.

Zhou et al. discloses the case of a single light source to read data and control pixels recorded on a holographic medium. The control pixels are then used by the controller to control the servo mechanism. Zhou et al. does not teach to provide a second light source, much less an alignment laser having a different wavelength from the recording laser. For the record, in response to page 4, line 13 of the Official Action, Applicant has not acknowledged that Zhou et al. discloses a second alignment light source or the "ability" provided thereby.

Neither Hays et al. nor Psaltis et al. teach the use of an alignment laser to provide a beam that is less absorbed by the recording media than the recording beam. Thus, it is

¹ The choice of wavelength for the alignment beam is discussed in the Specification, page 15, lines 2-25.

respectfully submitted that Claims 22 and 27 are patentable over Hays et al. or Psaltis et al. in view of Zhou et al.

MacAnally et al. is directed to the transfer of data to and from an optical disc, such as a CD or DVD, not holographic recording media. Holographic recording media are very different from the optical discs disclosed by MacAnally et al.² For example, a holographic recording medium typically has a thickness of about 1 mm as opposed to an optical disc which has a typical recording layer of about 100 mm. An optical disc has only one "page" written on it by a single laser at 90 degrees to the surface of the disc. Holographic recording media can have multiple "pages" written on them by changing the incident angle of the recording laser. Thus, MacAnally et al. is directed to a very different recording technology than the present invention.

Further, MacAnally et al. does not teach the splitting of the recording beam into signal and reference beams, as recited in Claims 22 and 27. MacAnally et al. does not teach that signal and reference beams are incident on the holographic recording medium, as recited in Claims 22 and 27. Thus, MacAnally et al. does not teach that the signal light beam and the reference light beam are irradiated parallel with a track of the holographic recording medium to write an interference fringe in a direction perpendicular to the track of the recording region as claimed in Claim 22, nor that the signal light beam and the reference light beam are irradiated onto the holographic recording medium at an incident angle making it impossible to generate a primary interference of the alignment light beam as claimed in Claim 27. In conclusion, not only does MacAnally et al. fail to disclose the elements of the present invention, MacAnally et al. teaches away from the present invention. Thus, Applicant believes Claims 22 and 27 are patentable over Hays et al. or Psaltis et al. in view of MacAnally et al.

² The fabrication of an exemplary holographic recording medium is disclosed in the Specification from page 26, line 25 to page 29, line 3.



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Claims 23-26 are dependent from Claim 22, with is believed to be patentable over the cited references. Thus, Claims 23-26 are patentable over the cited references.

Claims 28-32 are dependent from Claim 27, with is believed to be patentable over the cited references. Thus, Claims 28-32 are patentable over the cited references.

Accordingly, the outstanding rejections are traversed and the pending claims are believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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